

OPERATOR

Company: Infinity Oil, Inc.
 Address: 1014 E 29th St.
 Hays, KS 67601

Contact Geologist:
 Contact Phone Nbr: 785-628-6078
 Well Name: Ottley A #1
 Location: Sec. 17 - T14S - R31W
 API: 15-063-22274-0000
 Pool:
 State: Kansas

Field: Wildcat
 Country: USA

Scale 1:240 Imperial

Well Name: Ottley A #1
 Surface Location: Sec. 17 - T14S - R31W
 Bottom Location:
 API: 15-063-22274-0000
 License Number: 35243
 Spud Date: 11/13/2015 Time: 3:45 PM
 Region: Gove County
 Drilling Completed: 11/21/2015 Time: 6:15 PM
 Surface Coordinates: 2310' FSL & 490' FWL
 Bottom Hole Coordinates:
 Ground Elevation: 2843.00ft
 K.B. Elevation: 2850.00ft
 Logged Interval: 3700.00ft To: 4625.00ft
 Total Depth: 4625.00ft
 Formation: Mississippian
 Drilling Fluid Type: Chemical/Fresh Water Gel

SURFACE CO-ORDINATES

Well Type: Vertical
 Longitude:
 Latitude:
 N/S Co-ord: 2310' FSL
 E/W Co-ord: 490' FWL

LOGGED BY

Keith Reavis
Consulting Geologist

Company: Keith Reavis, Inc.
 Address: 3420 22nd Street
 Great Bend, KS 67530

Phone Nbr: 620-617-4091
 Logged By: KLG #136

Name: Keith Reavis

CONTRACTOR

Contractor: Pickrell Drilling Company, Inc.
 Rig #: 10
 Rig Type: mud rotary
 Spud Date: 11/13/2015
 TD Date: 11/21/2015
 Rig Release:

Time: 3:45 PM
 Time: 6:15 PM
 Time:

ELEVATIONS

K.B. Elevation: 2850.00ft
 K.B. to Ground: 7.00ft

Ground Elevation: 2843.00ft

NOTES

Due to positive results of DST #3 and electrical log analyses, it was determined by the operator to set 5 1/2" production casing and further test the Johnson Zone through perforations and stimulation.

A Bloodhound gas detection system operated by Bluestem Labs was employed on this well. ROP and gas data were

imported into this log. Gamma ray and caliper curves were also imported from the electrical log suite.

Respectfully submitted,
Keith Reavis

Infinity Oil, Inc.

daily drilling report

DATE	7:00 AM DEPTH	REMARKS
11/16/2015		Geologist Keith Reavis on location @ 1830 hrs, 3417 ft, drilling ahead check gas detection, displace mud system late due to storms @ 3467 ft
11/17/2015	3693	drilling ahead, Topeka, Heebner, Toronto, Lansing
11/18/2015	4123	drilling ahead, Lansing, shows in H - J warrant test, short trip, TOH for DST #1, conduct and complete DST #1, successful test, TIH w/bit, resume drilling
11/19/2015	4170	show in K zone warrants test, TOH for DST #2, conducting and complete DST #2, successful test, TIH w/bit, resume drilling, Base KC
11/20/2015	4400	drilling ahead, Marmaton, Pawnee, Ft. Scott, Cherokee, Johnson, gas kick and show in Johnson warrants test, short trip, TOH for DST #3, conducting DST #3
11/21/2015	4500	complete DST #3, successful test, TIH w/bit, resume drilling, Morrow sand, Mississippian, TD 4625 ft, ctch, TOH for logs, conducting logging operations
11/22/2015	4625	complete logging operations, geologist off location 0300 hrs

Infinity Oil, Inc.

well comparison sheet

DRILLING WELL					COMPARISON WELL				COMPARISON WELL			
Ottley A #1					Pioneer - Groom #1				Lario - Rebarchek #1-18			
2310' FSL & 490' FWL					2310' FNL & 1475' FWL				335' FSL & 335' FWL			
Sec 17-T14S-R31W					Sec. 18 T14S R31W				Sec. 18 T14S R31W			
2850 KB					2778 KB				2790 KB		Structural Relationship	
Formation	Sample	Sub-Sea	Log	Sub-Sea	Log	Sub-Sea	Sample	Log	Log	Sub-Sea	Sample	Log
Topeka	3696	-846	3690	-840	3618	-840	-6	0				
Heebner	3857	-1007	3855	-1005	3780	-1002	-5	-3	3794	-1004	-3	-1
Toronto	3874	-1024	3873	-1023	3798	-1020	-4	-3	3814	-1024	0	1
Lansing	3896	-1046	3893	-1043	3818	-1040	-6	-3	3832	-1042	-4	-1
Muncie Creek	4050	-1200	4050	-1200	3976	-1198	-2	-2	3985	-1195	-5	-5
Stark	4140	-1290	4138	-1288	4064	-1286	-4	-2	4074	-1284	-6	-4
Base KC	4220	-1370	4219	-1369	4143	-1365	-5	-4	4154	-1364	-6	-5
Pawnee	4344	-1494	4343	-1493	4268	-1490	-4	-3	4282	-1492	-2	-1
Cherokee	4397	-1547	4396	-1546	4318	-1540	-7	-6	4330	-1540	-7	-6
Johnson Zn	4470	-1620	4468	-1618	4390	-1612	-8	-6	4400	-1610	-10	-8
Morrow Sand	4524	-1674	4522	-1672	4439	-1661	-13	-11	4451	-1661	-13	-11
Mississippian	4556	-1706	4556	-1706	4454	-1676	-30	-30	4456	-1666	-40	-40
Total Depth	4625	-1775	4625	-1775	4599	-1821	46	46	4591	-1801	26	26

Drill Stem Test #1



DIAMOND TESTING
P.O. Box 157
HOISINGTON, KANSAS 67544
(800) 542-7313

TIME ON: 11:28
TIME OFF: 19:36

DRILL-STEM TEST TICKET
FILE: OTTLEYA1DST1

Company INFINITY OIL, INC. Lease & Well No. OTTLEY A#1
Contractor PICKERELL DRILLING CO. INC. RIG #10 Charge to INFINITY OIL, INC.
Elevation 2850 KB Formation LANSING "H-J" Effective Pay _____ Ft. Ticket No. T513
Date 11-18-15 Sec. 17 Twp. _____ 14 S Range _____ 31 W County GOVE State KANSAS
Test Approved By KEITH REAMS Diamond Representative TIMOTHY T. VENTERS

Formation Test No. 1 Interval Tested from 4048 ft. to 4126 ft. Total Depth 4126 ft.

Packer Depth 4043 ft. Size 6 3/4 in. Packer depth _____ ft. Size 6 3/4 in.
Packer Depth 4048 ft. Size 6 3/4 in. Packer depth _____ ft. Size 6 3/4 in.
Depth of Selective Zone Set _____
Top Recorder Depth (Inside) _____ 4029 ft. Recorder Number _____ 5504 Cap. _____ 5,000 P.S.I.
Bottom Recorder Depth (Outside) _____ 4123 ft. Recorder Number _____ 11029 Cap. _____ 5,025 P.S.I.
Below Straddle Recorder Depth _____ ft. Recorder Number _____ Cap. _____ P.S.I.
Mud Type CHEMICAL Viscosity _____ 51 Drill Collar Length _____ 0 ft. I.D. _____ 2 1/4 in.
Weight _____ 9.0 Water Loss _____ 7.6 cc. Weight Pipe Length _____ 0 ft. I.D. _____ 2 7/8 in.
Chlorides _____ 5,000 P.P.M. Drill Pipe Length _____ 4015 ft. I.D. _____ 3 1/2 in.
Jars: Make STERLING Serial Number _____ 2 Test Tool Length _____ 33 ft. Tool Size 3 1/2-IF in.
Did Well Flow? NO Reversed Out NO Anchor Length _____ 16 ft. Size _____ 4 1/2-FH in.
Main Hole Size 7 7/8 Tool Joint Size 4 1/2 XH in. Surface Choke Size _____ 1 in. Bottom Choke Size 5/8 in.

Blow: 1st Open: **WEAK SURFACE BLOW, BUILDING TO 1 INCH.** (NO BB)
2nd Open: **WEAK SURFACE BLOW, BUILDING TO 1 1/2 INCHES.** (NO BB)

Recovered 1 ft. of CLEAN OIL
Recovered 35 ft. of SOCM, 14% OIL, 86% MUD
Recovered 36 ft. of TOTAL FLUID
Recovered _____ ft. of _____
Recovered _____ ft. of _____
Recovered _____ ft. of _____
Remarks: _____
TOOL SAMPLE: 12% OIL, 86% MUD

	Price Job
	Other Charges
	Insurance
	Total

Time Set Packer(s) 1:37 PM ^{A.M.}/_{P.M.} Time Started Off Bottom 5:17 PM ^{A.M.}/_{P.M.} Maximum Temperature 105 deg.
Initial Hydrostatic Pressure..... (A) _____ 1938 P.S.I.
Initial Flow Period..... Minutes 10 (B) _____ 24 P.S.I. to (C) _____ 26 P.S.I.
Initial Closed In Period..... Minutes 60 (D) _____ 1100 P.S.I.
Final Flow Period..... Minutes 60 (E) _____ 27 P.S.I. to (F) _____ 38 P.S.I.
Final Closed In Period..... Minutes 90 (G) _____ 1029 P.S.I.
Final Hydrostatic Pressure..... (H) _____ 1935 P.S.I.

Drill Stem Test #2



DIAMOND TESTING
P.O. Box 157
HOISINGTON, KANSAS 67544
(800) 542-7313
DRILL-STEM TEST TICKET
FILE: OTTLEYA1DST2

TIME ON: 04:25
TIME OFF: 11:03

Company INFINITY OIL, INC. Lease & Well No. OTTLEY A#1
Contractor PICKERELL DRILLING CO. INC. RIG #10 Charge to INFINITY OIL, INC.
Elevation 2850 KB Formation LANSING "K" Effective Pay _____ Ft. Ticket No. T514
Date 11-19-15 Sec. 17 Twp. 14 S Range _____ 31 W County GOVE State KANSAS
Test Approved By KEITH REAMS Diamond Representative TIMOTHY T. VENTERS

Formation Test No. 2 Interval Tested from _____ 4138 ft. to _____ 4170 ft. Total Depth _____ 4170 ft.
Packer Depth _____ 4133 ft. Size 6 3/4 in. Packer depth _____ ft. Size 6 3/4 in.
Packer Depth _____ 4138 ft. Size 6 3/4 in. Packer depth _____ ft. Size 6 3/4 in.
Depth of Selective Zone Set _____

Top Recorder Depth (Inside) _____ 4119 ft. Recorder Number _____ 5504 Cap. _____ 5,000 P.S.I.
Bottom Recorder Depth (Outside) _____ 4167 ft. Recorder Number _____ 11029 Cap. _____ 5,025 P.S.I.
Below Straddle Recorder Depth _____ ft. Recorder Number _____ Cap. _____ P.S.I.
Mud Type CHEMICAL Viscosity _____ 51 Drill Collar Length _____ 0 ft. I.D. _____ 2 1/4 in.

Mud Type CHEMICAL Viscosity 51 Drill Collar Length 0 ft. I.D. 2 1/4 in.
 Weight 9.0 Water Loss 7.6 cc. Weight Pipe Length 0 ft. I.D. 2 7/8 in.
 Chlorides 5,000 P.P.M. Drill Pipe Length 4105 ft. I.D. 3 1/2 in.
 Jars: Make STERLING Serial Number 2 Test Tool Length 33 ft. Tool Size 3 1/2-IF in.
 Did Well Flow? NO Reversed Out NO Anchor Length 32 ft. Size 4 1/2-FH in.
 Main Hole Size 7 7/8 Tool Joint Size 4 1/2 XH in. Surface Choke Size 1 in. Bottom Choke Size 5/8 in.

Blow: 1st Open: **WEAK SURFACE BLOW THROUGHOUT PERIOD.** (NO BB)
 2nd Open: **VERY WEAK SURFACE BLOW LASTING 4 MIN.** (NO BB)

Recovered 5 ft. of M WTR. O, TRACE OIL, 100% MUD
 Recovered ft. of
 Recovered ft. of
 Recovered ft. of

Recovered <u> </u> ft. of <u> </u>	Price Job
Recovered <u> </u> ft. of <u> </u>	Other Charges
Remarks: WE FLUSHED TOOL 15 MIN. INTO FINAL FLOW PERIOD AND JUST GOT THE SURGE BLOW.	Insurance
TOOL SAMPLE: SPOTTY OIL, 100% MUD	Total

Time Set Packer(s) 6:25 AM A.M. P.M. Time Started Off Bottom 9:05 AM A.M. P.M. Maximum Temperature 103 deg.
 Initial Hydrostatic Pressure..... (A) 1995 P.S.I.
 Initial Flow Period..... Minutes 10 (B) 23 P.S.I. to (C) 23 P.S.I.
 Initial Closed In Period..... Minutes 60 (D) 848 P.S.I.
 Final Flow Period..... Minutes 30 (E) 23 P.S.I. to (F) 25 P.S.I.
 Final Closed In Period..... Minutes 60 (G) 616 P.S.I.
 Final Hydrostatic Pressure..... (H) 1984 P.S.I.

Drill Stem Test #3



DIAMOND TESTING
 P.O. Box 157
 HOISINGTON, KANSAS 67544
 (800) 542-7313
DRILL-STEM TEST TICKET
 FILE: OTTLEYA1DST3

TIME ON: 20:46 11-20-15
 TIME OFF: 05:35 11-21-15

Company INFINITY OIL, INC. Lease & Well No. OTTLEY A#1
 Contractor PICKERELL DRILLING CO. INC. RIG #10 Charge to INFINITY OIL, INC.
 Elevation 2850 KB Formation JOHNSON Effective Pay Ft. Ticket No. T515
 Date 11-20-15 Sec. 17 Twp. 14 S Range 31 W County GOVE State KANSAS
 Test Approved By KEITH REAMS Diamond Representative TIMOTHY T. VENTERS

Formation Test No. 3 Interval Tested from 4428 ft. to 4500 ft. Total Depth 4500 ft.
 Packer Depth 4423 ft. Size 6 3/4 in. Packer depth ft. Size 6 3/4 in.
 Packer Depth 4428 ft. Size 6 3/4 in. Packer depth ft. Size 6 3/4 in.
 Depth of Selective Zone Set

Top Recorder Depth (Inside) 4409 ft. Recorder Number 5504 Cap. 5,000 P.S.I.
 Bottom Recorder Depth (Outside) 4497 ft. Recorder Number 11029 Cap. 5,025 P.S.I.
 Below Straddle Recorder Depth ft. Recorder Number Cap. P.S.I.

Mud Type CHEMICAL Viscosity 55 Drill Collar Length 0 ft. I.D. 2 1/4 in.
 Weight 9.1 Water Loss 8.0 cc. Weight Pipe Length 0 ft. I.D. 2 7/8 in.
 Chlorides 7,000 P.P.M. Drill Pipe Length 4395 ft. I.D. 3 1/2 in.
 Jars: Make STERLING Serial Number 2 Test Tool Length 33 ft. Tool Size 3 1/2-IF in.
 Did Well Flow? NO Reversed Out NO Anchor Length 41 ft. Size 4 1/2-FH in.
 Main Hole Size 7 7/8 Tool Joint Size 4 1/2 XH in. 31' DP IN ANCHOR Surface Choke Size 1 in. Bottom Choke Size 5/8 in.

Blow: 1st Open: **WEAK 1/2 INCH BLOW, BUILDING, REACHING BOB 9 MIN.** (NO BB)

Recovered	805 ft. of	GAS IN PIPE
Recovered	185 ft. of	GO, 4% GAS, 96% OIL, GRAVITY: 27
Recovered	375 ft. of	G,MCO, 8% GAS, 66% OIL, 26% MUD
Recovered	560 ft. of	TOTAL FLUID
Recovered	ft. of	
Recovered	ft. of	
Remarks:		
TOOL SAMPLE: 10% GAS, 46% OIL, 44% MUD		

Price Job
Other Charges
Insurance
Total

Time Set Packer(s)	10:56 PM	A.M. P.M.	Time Started Off Bottom	2:36 AM	A.M. P.M.	Maximum Temperature	122 deg.
Initial Hydrostatic Pressure			(A)			2188 P.S.I.	
Initial Flow Period	Minutes	10	(B)	35	P.S.I. to (C)	95	P.S.I.
Initial Closed In Period	Minutes	60	(D)	1270	P.S.I.		
Final Flow Period	Minutes	60	(E)	103	P.S.I. to (F)	255	P.S.I.
Final Closed In Period	Minutes	90	(G)	1187	P.S.I.		
Final Hydrostatic Pressure			(H)			2183 P.S.I.	

ROCK TYPES

	sdymst		Lmst fw>		shale, gry		shale, red		Ss
	Lmst fw<7		shale, grn		Carbon Sh		Shcol		

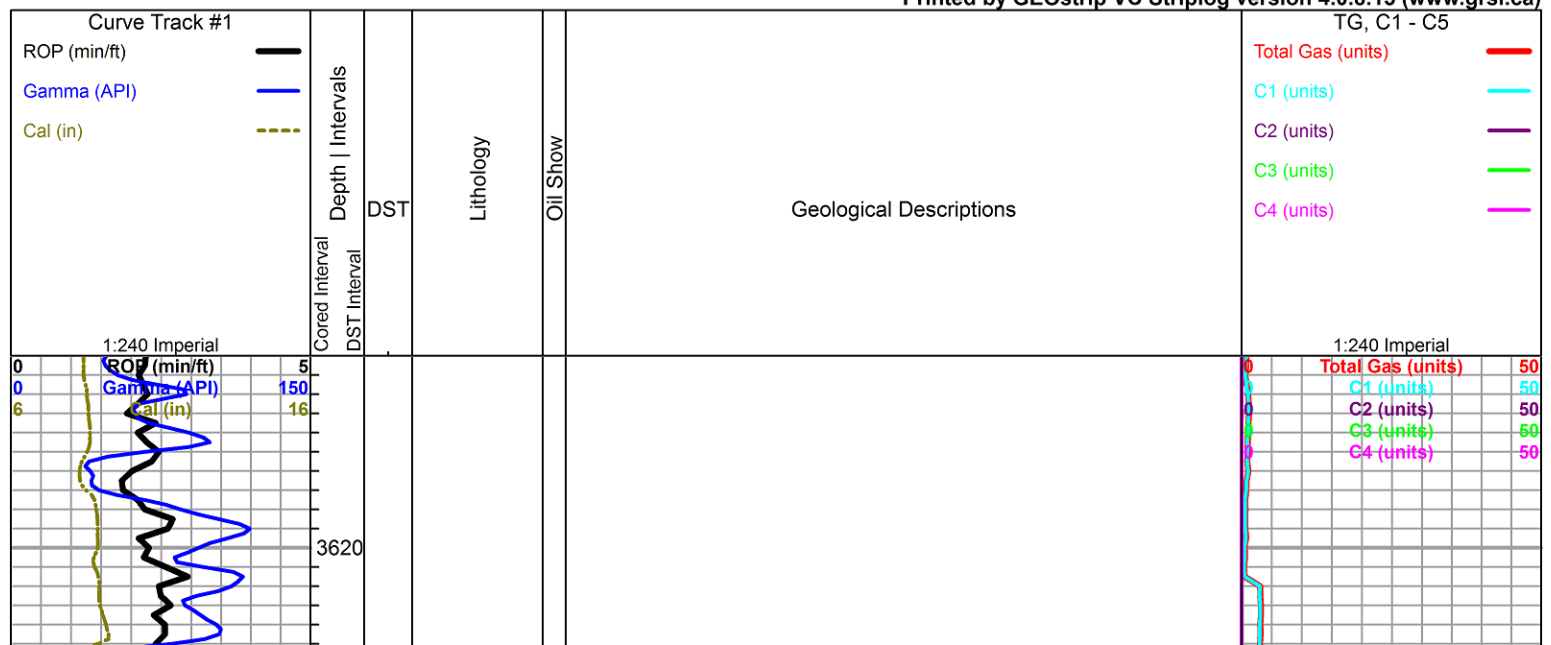
ACCESSORIES

MINERAL	FOSSIL	STRINGER	TEXTURE
▲ Chert, dark	∩ Bioclastic or Fragments	••• Sandstone	C Chalky
∩ Glauconite	F Fossils < 20%	••• Siltstone	L Lithogr
P Pyrite	∅ Oolite	— green shale	
△ Chert White	∅ Pellets	— red shale	
		— carb shale	

OTHER SYMBOLS

Oil Show	DST
● Good Show	■ DST Int
● Fair Show	■ DST alt
● Poor Show	■ Core
● Spotted or Trace	tail pipe
○ Questionable Stn	
D Dead Oil Stn	
■ Fluorescence	
* Gas	

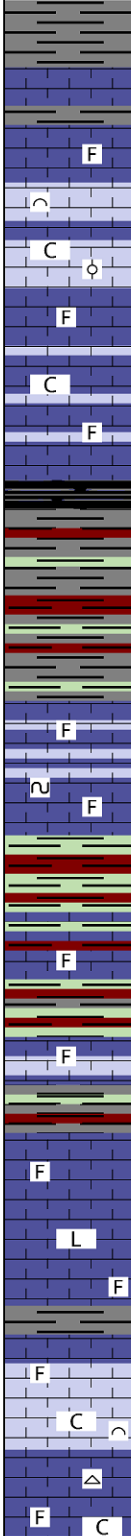
Printed by GEOstrip VC Striplog version 4.0.8.15 (www.grsi.ca)



3640
3660
3680
3700
3720
3740
3760
3780
3800
3820
3840

Topeka 3696 -846 (log 3690 -840)

begin 10 ft wet and dry samples @ 3700 ft



limestone, cream to light gray, microcrystalline, fossiliferous to bioclastic, trace oolitic, grainy, poor visible porosity, abundant chalk, no shows

limestone, mixed light gray to cream, fossiliferous, dense, no shows

3760 sample, black carbonaceous shale

shales, mixed gray with red and green

limestone, light gray to cream, microcrystalline, grainy fossiliferous, poor visible porosity, with: limestone, light gray, cryptocrystalline, fossiliferous, glauconitic in part, dense, no shows

flood gray/green and brick red shales, with limestone a.a.

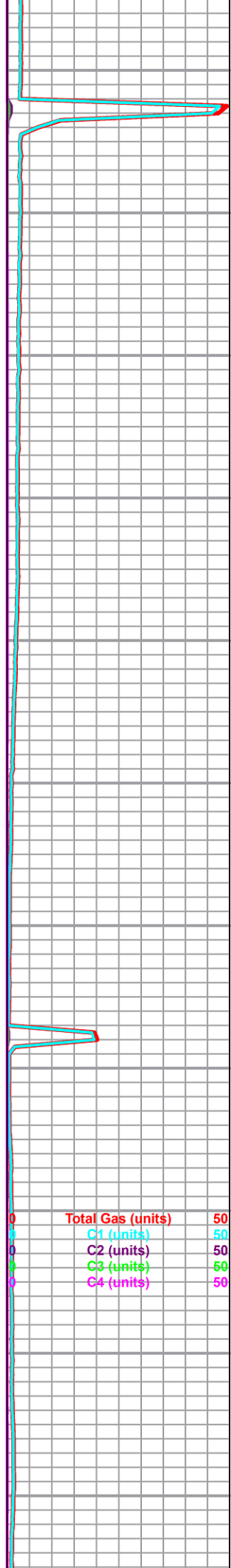
a.a. with abundant mixed grainy fossiliferous limestone, no shows

limestone, light gray to cream, microcrystalline, fossiliferous, poor visible porosity, grainy, with cryptocrystalline lithographic to slightly fossiliferous, no shows, some chalk

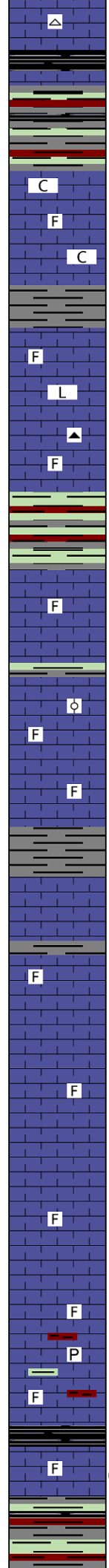
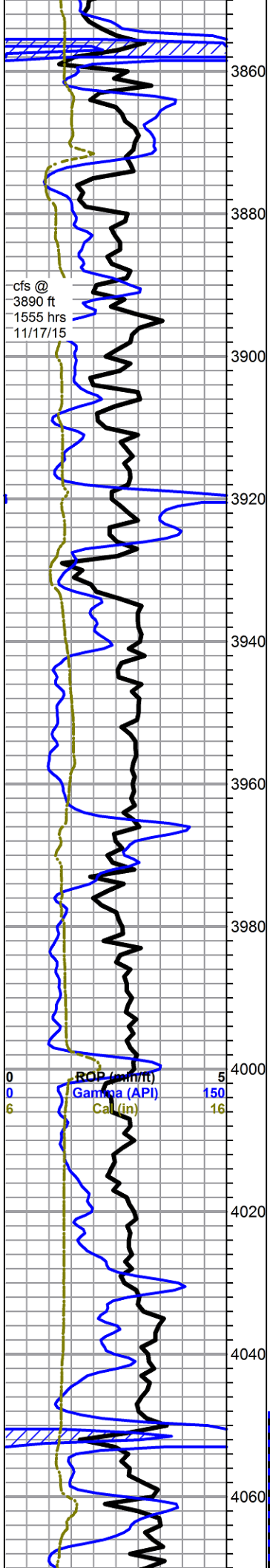
limestone, white to cream and light gray, microcrystalline, fossiliferous to bioclastic, grainy, poor visible porosity, abundant chalk, no shows

as above with some light gray cryptocrystalline limestone, light gray fossiliferous chert, no shows

ROP (min/ft) 5
Columbia (API) 150
Calumet 16



Total Gas (units) 50
C1 (units) 50
C2 (units) 50
C3 (units) 50
C4 (units) 50



Heebner 3857 -1007

shale, black carbonaceous
 flood shales, mixed red, gray, green, black, some pyrite nodules

Toronto 3874 -1024

limestone, white to cream, cryptocrystalline, fossiliferous, chalky, poor visible porosity, flood chalk in samples, no shows

Lansing 3896 -1046

limestone, white to light gray, cryptocrystalline, lithographic to fossiliferous, some chalk, trace light tan chert, slightly translucent, no shows

red, gray, green shale

limestone, white to light gray, mostly cryptocrystalline, fossiliferous to sub-lithographic, trace oolitic, some light gray dense gritty arenaceous, poor visible porosity, no shows, light fluorescence

a.a.

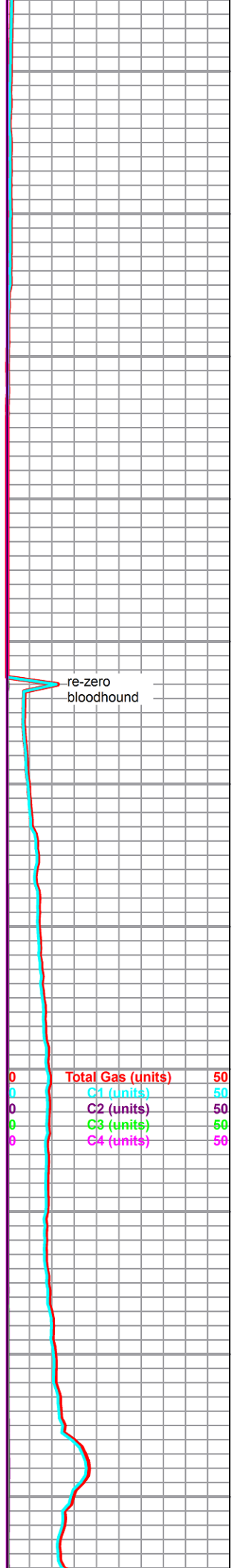
limestone, white to cream, some light gray, cryptocrystalline, fossiliferous, trace bioclastic, some sub-lithographic, chalky in part but mostly dense, poor visible porosity, no shows, faint fluorescence

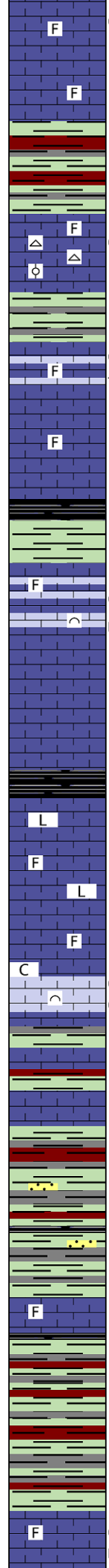
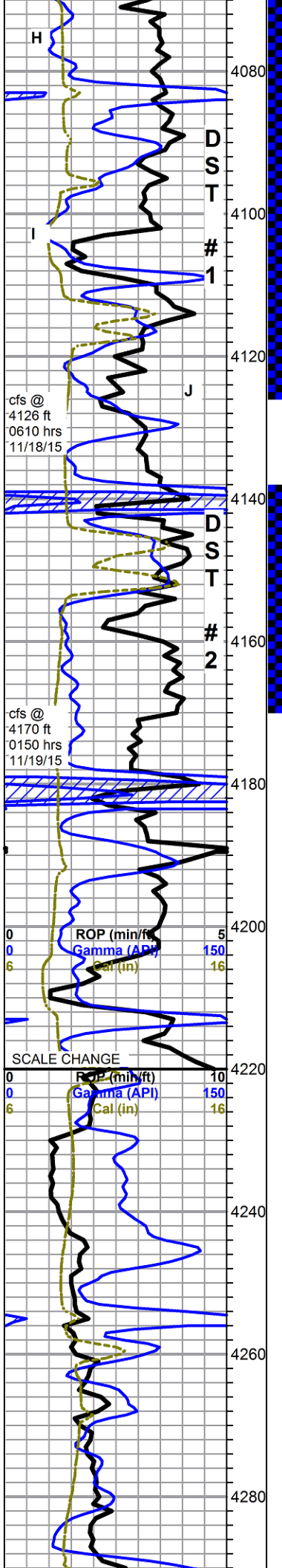
a.a.

a.a, abundant pyrite nodules in 4050 sample, marked increase in shales (sluff?)

Muncie Creek 4050 -1200

4070 sample black carbonaceous shale, with limestone a.a., trace limestone, gray, cryptocrystalline, fossiliferous, some secondary calcite, fractures and small solution vugs, light stain, few drops free oil on break, faint odor, fair fluorescence, good streaming cut





limestone, light gray, microcrystalline, fossiliferous, slightly grainy, small solution vugs, light stain in vugs, slight show gassy free oil on break, faint odor, fair to good fluorescence, slow but bright streaming cut

limestone, light gray to white, cryptocrystalline, fossiliferous, trace oolitic, few pieces good spotty fluorescence, poor cut, some small fractures, light stain on fracture planes with slight show free oil on break, some free oil in tray, fleeting odor under lamp, abundant frosted gray fossiliferous chert, sharp, fresh, no stain

flood gray and green shales, abundant pyrite

limestone, gray, microcrystalline, fossiliferous, vuggy to moldic, slight stain, fair show gassy free oil, fair odor, slight stain, good spotted fluorescence, excellent cut, some grainy tan bioclastic with sucrosic texture, slight stain, abundant shales and pyrite a.a.

limestone, mixed white to light gray, fossiliferous, dense to chalky. no shows

Stark Shale 4140 -1290
shale, black carbonaceous, with green shales

limestone, light gray, microcrystalline, fossiliferous to bioclastic, dense, some scattered small vugs, slight stain, slight show gas, fair show oil, bright green fluorescence, with limestone, white, fossiliferous, grainy to sucrosic, some friable, show light oil on break, fluorescence a.a., fair cut fluorescence, weak odor in wet cup

poor samples, trip trash

black carbonaceous shale and green shale

limestone, light gray, cryptocrystalline, lithographic to fossiliferous, dense, some white soft very chalky limestone, slightly pyritic and slightly fossiliferous, no visible porosity, no shows, no fluorescence

samples mostly shale, found 1 piece white chalky friable limestone, bright fluorescence, 1 piece recrystallized bioclastic, bright fluorescence, no staining, film of light oil on break on both specimens with slight odor, no odor in wet cup

Base KC 4220 -1370

mixed shales, with some scattered pyrite, trace dirty gray sandstone, poorly sorted, fine to very fine grain, well cemented, no shows

limestone, gray to brown, some gray green, mostly cryptocrystalline, dense, fossiliferous to sub-lithographic, few pieces spotty fluorescence, no shows

Marmaton 4281 -1431
limestone, light gray, mostly cryptocrystalline, dense, fossiliferous, poor visible porosity, few pieces bright green fluorescence, no stain, slight oil sheen and fleeting odor on break. poor cut. no odor in wet

Andy's Mud chk @ 4126 ft. 0915 hrs. 11/18/15 Vis. 51 Wt. 9.0 PV 17 YP 15 WL 7.6 Cake 1/32, pH 9.5 CHL 5000 ppm Ca 60 ppm Sol 4.3 LCM 3.5# DMC \$1865.20 CMC \$12517.00

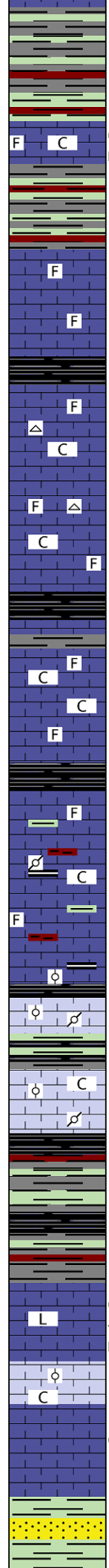
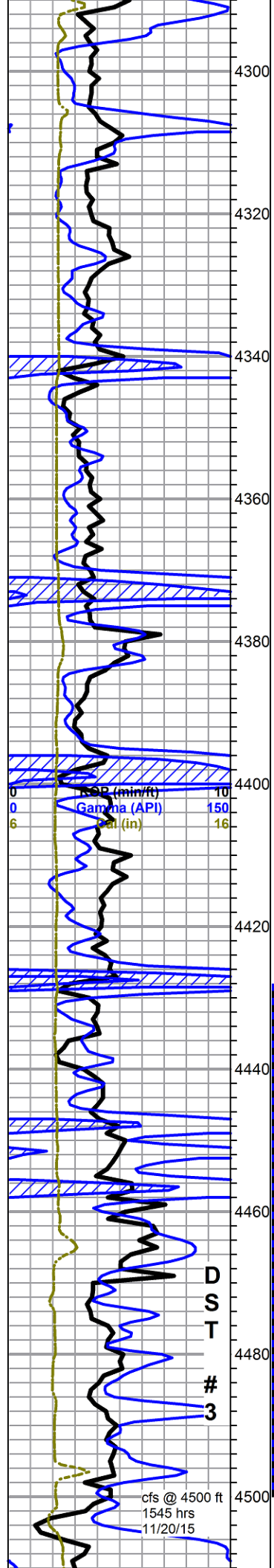
pipe strap 1.34 ft long deviation survey 3/4 deg

Andy's Mud chk @ 4170 ft. 1015 hrs. 11/19/15 Vis. 47 Wt. 9.3 PV 14 YP 11 WL 8.8 Cake 1/32, pH 9.0 CHL 7500 ppm Ca 60 ppm Sol 4.3 LCM 3# DMC \$212.30 CMC \$12729.30

SCALE CHANGE

0	Total Gas (units)	100
0	C1 (units)	100
0	C2 (units)	100
0	C3 (units)	100
0	C4 (units)	100

re-zero and reset attenuation



multicolored shales, some pyrite

4330 sample - limestone, white to light gray, cryptocrystalline, fossiliferous, grainy to very chalky, poor visible porosity, some with good spotty fluorescence, light oil droplets and faint odor on break, no staining, poor cut with halo, no odor in wet cup

poor samples, abundant shales - limestone, cream to white and light gray, fossiliferous, chalky in part, no shows

Pawnee 4344 -1494

poor samples, abundant shales - limestone, cream to white, cryptomicrocrystalline, fossiliferous, chalky, with chert, white to frosted gray, fossiliferous to spiculitic, small shards, sharp, fresh, no shows

limestone, gray, tan and white, microcrystalline, fossiliferous, chalky in part, poor visible porosity, no shows, some light mineral fluorescence, abundant chalk - shales dropping out in 4400 & 4410 samples

Cherokee 4397 -1547

limestone, light gray to tan and white, mixed fossiliferous, dense to slightly chalky, scattered pelletal and oolitic, poor visible porosity, scattered chert, moderate chalk, abundant black, brown, maroon and green shales, no shows

a.a.

limestone, gray to light gray, oolitic to pelletal, dense to chalky weathered, poor visible porosity, no shows, poor fluorescence - with abundant shale, some carbonaceous

mixed shales, abundant black carbonaceous, dense, blocky

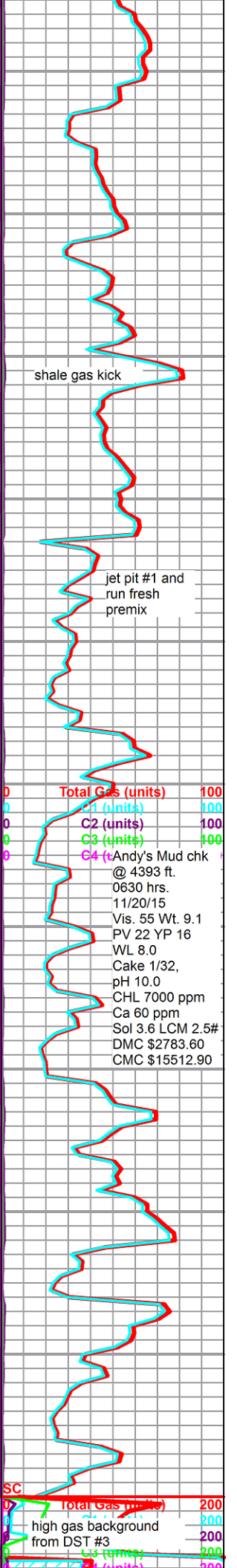
Johnson Zone 4470 -1620

limestone, dark gray to brown, cryptocrystalline, lithographic and cherty to recrystallized fossiliferous, good small wormy solution vug porosity, calcite crystals in vugs, fair staining in vugs and fractures, bleeding gassy free oil, faint odor, no fluorescence, excellent milky cut (note: few specimens, still flooded with shale in samples)

@ 4481' (4500 sample) limestone, gray to tan, oolitic, dense to friable, poor visible porosity, no shows, no odor, no fluorescence

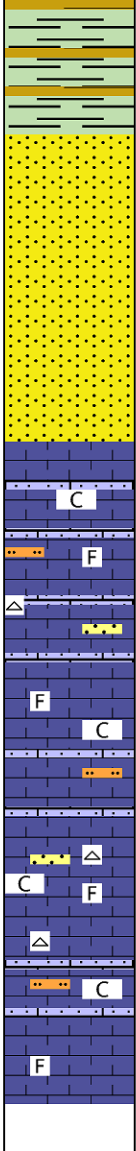
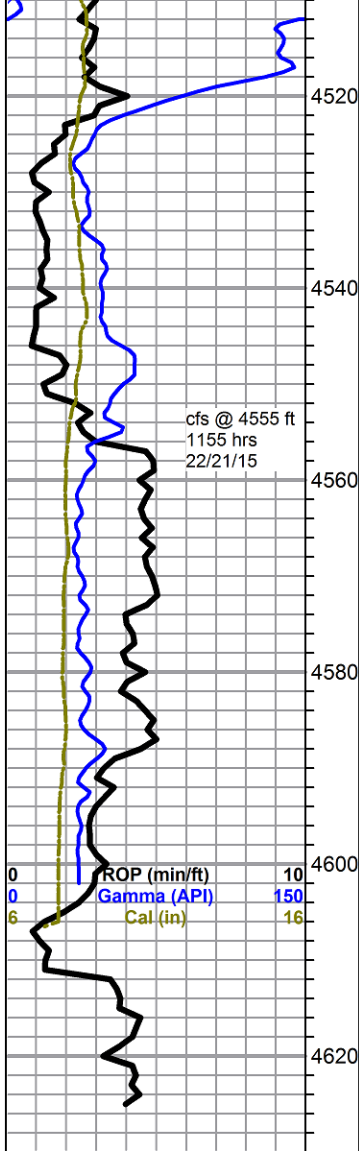
30 min sample, as from 4470, only few specimens

green, olive and yellow shale, few scattered clusters quartz sandstone, very fine grain, well rounded, fair to poor sorting, fairly clean to glauconitic and shaley, well cemented to friable, barren



cfs @ 4500 ft
 1545 hrs
 11/20/15

D
 S
 T
 #
 3



shale a.a., with some sandstone a.a.

Morrow Sand 4524 -1674

sandstone, white, quartz, very fine grain, well rounded, fair to poor sorting, friable to well cemented, silica cement, poor to some fair inter-granular porosity, barren

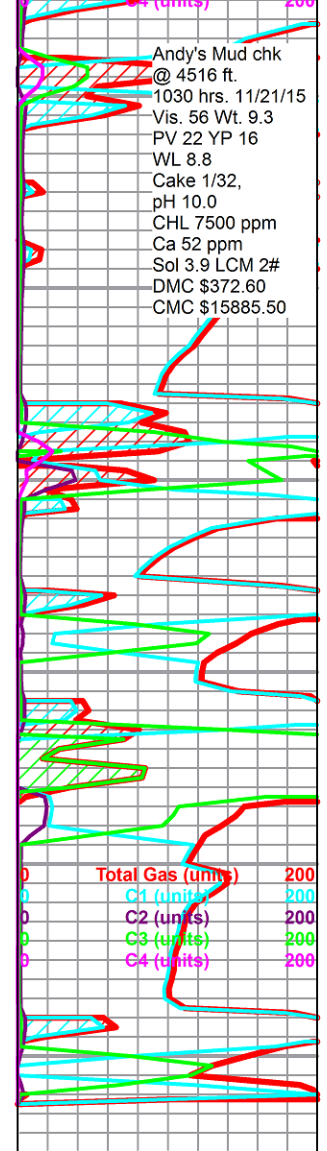
Mississippian 4556 -1706

limestone, light gray, cryptocrystalline, lithographic to slightly fossiliferous, some chalky, mostly dense, with: sandy limestones, trace chert, some chalk in samples, still abundant sand sluff from above, abundant pale green shaley sandstone and siltstones

as above

as above, increase chalk, slight increase chert

Rotary TD @ 4625 ft 1815 hrs 11/21/15
Pioneer Log TD 4625 ft
Complete logging operations hrs 11/22/15



Andy's Mud chk
@ 4516 ft.
1030 hrs. 11/21/15
Vis. 56 Wt. 9.3
PV 22 YP 16
WL 8.8
Cake 1/32,
pH 10.0
CHL 7500 ppm
Ca 52 ppm
Sol 3.9 LCM 2#
DMC \$372.60
CMC \$15885.50